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LOOKING FORWARD

It is both characteristic and fitting that the man who more than any other contributed to the historical development of American public-health work in the fifty years just closing, should be the first to turn his eyes toward the half century which is now opening before us, and present a definite objective for the organized public-health movement. While striplings of fifty and seventy-five swapped reminiscences about their deeds of sanitary and medical prowess, this incredible centenarian waived his opportunity for personal history, and, projecting his mind into the future, he might have said, with the narrator in "Locksley Hall"—

> "Here about the beach I wander'd, nourishing a youth sublime,
> With the fairy tales of science, and the long result of time;
> When the centuries behind me like a fruitful land reposed;
> When I clung to all the present for the promise that it closed:
> When I dip't into the future far as human eye could see;
> Saw the vision of the world, and all the wonder that would be."

Dr. Smith's main proposal was that the American Public Health Association establish as its definite aim during the coming year the extension of the average span of human life in America from its present length of about 45 years to 100 years, and initiate a long-time program over a period of fifty years looking toward the realization of that ideal. President McLaughlin will shortly appoint a committee to consider this proposal, and we may expect that some formal action will be taken upon it before another year has rolled around.

The practicability of such a prolongation of life is a first point which calls for serious consideration. As Dr. Hoffman has pointed out in his paper on "American Mortality Progress" in the Jubilee Volume of the Association, the fall

in the death-rate during recent years has reached a point considered absolutely unattainable a generation ago. During the 1890's, Dr. Samuel W. Abbott, secretary of the Massachusetts State Board of Health, and the majority of prominent sanitarians and statisticians assumed without question that a crude death-rate of 18 per 1,000 population was satisfactorily low, and that an average rate of less than 15 for the registration area was never to be expected. How far such assumptions have missed the mark of present-day levels is now universally known, and no contemporary scientific man would have the hardihood to make predictions of an impasse in the reduction of American mortality within the near future.

Dr. Charles Asbury Stephens, in a recent book called *Immortal Life: How It Will Be Achieved,* has elaborated the thesis of Metchnikoff to the effect that an indefinite extension of life is possible by eliminating the causes of animal decay at their source—the cell—and perfecting a cell food which will maintain tissue in permanent vitality. It is obvious that this biological issue must lie at the bottom of any fundamental consideration of longevity, and that we are only beginning to scratch the surface of the question of the relation between heredity and the negative forces of old age and disease. As Dr. Welch wittily said, Dr. Smith perhaps owes his great age and vitality, more than to any other one factor, to his very careful choice of his ancestors. We can probably never expect any permanent or extensive prolongation of the span of life until society begins to make definite application of both positive and restrictive eugenics.

Entirely apart from the possibilities of cell vitalization or of eugenic progress, however, Stephens admits the necessity of success in extirpating pathogenic organisms if death-rates are to be largely reduced. Whether or not the present efforts of preventive medicine to identify the etiological agents of cancer, leprosy, and other diseases still largely in the category of "incurable," are successful, there remains a generous margin of "preventability" in the diseases which have been, to a degree, brought under control. The classic "Report on National Vitality," prepared by Irving Fisher for President Roosevelt's National Conservation in 1909, contains in brief compass the most comprehensive and informed discussion of morbidity, mortality, and longevity, and their interrelations that has yet been published. Although more recent figures could possibly be adduced, nowhere have these possibilities of prolonged life been set forth more vividly. Professor Fisher shows, in a table which should be at the elbow of every health officer, the expectation of life at the median age of persons dying from each cause of death, ratios of "preventability," or rather, "postponability" for the causes named, and percentages of deaths from each cause to the total of all deaths. The ratios are derived from averages of estimates by some eighteen prominent physicians, based on both statistical and clinical experience, and are conservatively calculated on the basis of a definition of preventability as that "fraction of all deaths which would be avoided if knowledge now existing among well-informed men in the medical profession were actually applied in a reasonable way and to a reasonable extent." From these factors he calculates the number of years which would be added to the

average lifetime if deaths were prevented in the ratio of preventability given. The sum of these figures amounts to 14.06 years, divided among diseases of infancy (4.4 years), of childhood (1.51), middle age (6.82), and late life (1.33). The largest single additions were derived from diarrhea and enteritis (2.32 years), pulmonary tuberculosis (2.45), and lobar and unqualified pneumonia (.94).

Fisher, therefore, believes fifteen years to be a safe minimum estimate of possible prolongation of life, as it takes no account of future medical discoveries, the cumulative influence of hygiene, nor the effects upon health and vitality of eugenic propaganda. The present span of 45 years could thus be raised to 60 with reasonable effort. Whether it can be continued over the other 40 to the 100-mark, is meat for speculation. Mathematically it is plain that the progression will be geometrically retarded as the mortality rate approaches its fixed limit of "no deaths." The fight for improvement will not become easier, but harder.

And it is worth pausing a moment to consider whether the movement toward longevity must not face frankly the ultimate philosophical and ethical dilemmas which have engrossed the minds of the best and wisest of the race, from Plato to William James: "Is life worth living," and if 60 years of it are, would 100 be equally tolerable? The mere physical prolongation of life is not necessarily an unmixed good. There are involved here most profound inquiries into the significance of life and the social organization of humanity. For most people life is a losing race between ennui and the quest for "thrills." Those who have the capacity for a higher philosophy may learn something from the lifework and social purposes of Stephen Smith. In any event, health workers should realize that the years of man's life can never be divorced from the ends to which they are put.

SCIENTIFIC DEMOCRACY IN THE UNITED STATES

On the occasion of the now famous semicentennial dinner to Dr. Stephen Smith, the aged and venerable founder of the American Public Health Association, Dr. Hermann M. Biggs, state health commissioner of New York, devoted a part of his address to a consideration of foreign laboratories. Their number is surprising, their equipment first-class, and their work exact, but in spite of these, Dr. Biggs seemed to his hearers to convey his belief that European laboratories, from the standpoint of public health, are less used and less useful than the laboratories of America. This bears out the impression of many visitors to Europe that among the older nations science and practice are divorced. The European laboratory is for research; its character as an adjunct to popular hygiene has not been developed extensively.

The scientist in the English laboratory, for example, is well aware of the ease with which milk can be contaminated and of the dangers to children from unclean milk, but his knowledge is not applied. Milk "for infants and invalids" continues to be delivered throughout parts of London in a small pushcart containing a copper receptacle with a spigot scarcely two feet above the pavement. It is measured in a tin cup which afterward is hung by its long handle, wet and dripping, from the edge of the cart, exposed to dust and to mud-splashings. The